

An anti-shadow flat single-axis solar tracking strategy was proposed. The feasibility and effectiveness of the proposed solution were tested using a simulation model constructed by MATLAB software.

In this paper, a new shadow detection algorithm is introduced that tackles the challenges mentioned above by creating a reference data-set for any studied PV system, detecting the moments ...

Bypass diodes are integrated into solar panels to create multiple electrical pathways. These pathways provide an alternate path for the flow of current in case a portion of the solar panel becomes shaded or fails, preventing ...

Our research focuses on enhancing the Pelican Optimization Algorithm (POA), a promising tool in solar energy optimization, to better tackle the efficiency drop observed under shaded conditions.

Abstract This paper aims at exploring different PhotoVoltaic (PV) array Reconfiguration (PVR) methods, used to reduce the negative impacts of Partial Shading Conditions (PSCs), that could affect the ...

Motivated by the need for improving the overall efficiency of PV systems at a local level, this paper presents a straightforward and effective algorithm for modelling the shadowing effects of ...

Shading analysis is crucial for optimizing the performance of photovoltaic (PV) systems. This comprehensive guide explores the effects of shading on solar panels, its common causes, and effective ...

In this paper, we document and describe two distinct Machine Learning models that aim to identify and assess the impact of partial shading in a real case study. These algorithms recognise...

To optimize PV array output efficiency under PS conditions, this paper investigates a MPPT algorithm for PV arrays in partial shading environments. This algorithm is optimized and improved...

This study concludes that integrating Artificial Intelligence (AI) and Machine Learning (ML) into MPPT algorithms significantly enhances the reliability and efficiency of PV systems, paving the ...

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